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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,346	11/26/2003	Shinya Tokunaga	61282-048	4744

7590 02/06/2006

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EXAMINER

SIEK, VUTHE

ART UNIT PAPER NUMBER

2825

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/722,346	Applicant(s) TOKUNAGA ET AL.	
	Examiner Vuthe Siek	Art Unit 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/18/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to application 10/722,346 and amendment filed on 11/16/2005. Claims 2-20 remain pending in the application, where claims 1 and 21-23 are canceled.

Drawings

2. Replacement of Figure 25, 26A and 26B have been approved by Examiner and recorded.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 2-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Pack et al. (US 2004/0133369 A1).

5. As to claim 12, Pack et al. teach substantially similar claimed limitations of a method and apparatus of inspecting a photomask for a semiconductor integrated circuit (IC) formed based drawing pattern data (Fig. 1-8 and its description) comprising classifying a drawing pattern of the semiconductor IC into a plurality of ranks in accordance with a reference (shape of a feature) depending on a feature of the drawing pattern (classifying or grouping mask data based on its context information and its

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priority/order/rank) and extracting the same; determining inspection accuracy for each of the ranks; and deciding quality of the photomask depending on whether the determined inspecting accuracy is satisfied for each drawing pattern thus extracted (Please see 0031, 0032, 0033, 0034, 0037, 0038, 0040, 0041, 0042, 0048, 0049, 0051, 0052, 0053, 0056, 0057, 0058, 0059, 0061, 0062, 0063, 0071, 0081, 0082, 0083, 0084, 0085, 0086, 0088, 0090, 0092, 0094, 0098, 0105, 0106, 0107, 0108, 0109, 0111, 0115, 0123, 0124, 0125, 0128, 0130, 0131, 0132, 0133, 0135, 0139, 0157, 0158, 0159, 0161, 0162, 0163, 0165, 0166, 0167, 0168, 0170, 0172, 0181, 0188, 0189, 0190, 0191, 0192, 0193, 0194, 0195, 0196, 0197). It is noted that in order to inspect each of the drawing pattern feature of the semiconductor according to its rank, order or priority, the pattern feature must be developed or extracted. Pak et al. teach changing an accuracy condition depending on an increase or decrease in pattern width (at least see 0233). In addition, Pak et al. also suggest changing an accuracy condition depending on an increase or decrease in pattern width in the following teachings. Pak et al. teach parasitic interactions may occur with overlying wires or with adjacent features. This may be addressed by specifying a resolution that is suitably fine to capture any circuit or process-perturbing defects in inspection and to interpret the defects carefully and in the appropriate circuit or processing context, if they satisfy conditions that warrant it. This may be done by use of tables which match conditions to a response rule or tolerance. Simple rules of features defect and fidelity tolerances as shown in the table (see 0126) provide additional screening for excluding non-impacting defects, while other rules may specify the true severity of the defects according to its circuits or process context. By

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analogy to design rule checking layout, various conditions and assigned tolerances rules allow a mask inspection or metrology system to apply only as stringent tolerance rules allow a mask inspection or metrology system to apply only as stringent a tolerance as is needed for the specific purpose. See example in [0128].

6. As to claims 2-11, Pak et al. teach classifying the drawing pattern into a plurality of ranks and to extract the same based on contextual information that that be added and priority meaning depending on a circuit-functional feature of a pattern formed by the drawing pattern (at least see 0042, 0044, 0045, 0180, 0181); depending on whether the pattern is a dummy pattern (at least see 0007, 0082, 0108); depending on a pattern adjacent to the drawing pattern is a dummy pattern (at least see 0073, 0074, 0131); depending on whether the pattern has the same node (see at least 0034, 0037, 0038); depending on the feature of the shape of the pattern (at least see 0039); depending on a distance from the closest pattern, a distance fro a corner of the pattern (at least see 0052, 0057, 0067, 0083, 0128); depending on the reference for each pattern, reference for each pattern edge, reference for each area (at least see 0032, 0038, 0039).

7. As to claims 13-19, Pack et al. teach relaxing the accuracy condition when the pattern is the dummy pattern, further relaxing the accuracy condition when a pattern adjacent to the pattern is the dummy pattern; relaxing the accuracy condition when two pattern having the same node based on a pattern in the same layer, different layers; changing the accuracy condition depending on whether one contact array is/are taken (patterns are classified as critical or non-critical, 0040, 0051).

8. As to claim 20, Pack et al. teach the feature is a relational expression of a manufacturing defect density and a manufacturing defect size and classifying the pattern into two ranks (rank/order/priority) depending on a critical point determined by an intersection of the relational expression of the manufacturing defect density and the manufacturing defect size in a photomask and a relational expression of a pattern are weighted by a manufacturing defect generation probability on a pattern and the manufacturing defect size is exceeded based on the critical point (at least see 0036, 0037, 0039, 0041, 0044, 0045, 00623, 0063, 0064, 0065, 0066, 0067, 0070, 0125, 0126, 0159, 0165, 0192, 0194, 0229, 0230, 0233).

Remarks

9. Examiner respectfully submits the present claims are not patentable over the teachings of Pak et al. Pak et al. teach substantially the same claim limitations as clearly described in above rejection. Pak et al. is still a qualified reference because English translation of priority document has not yet received.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vuthe Siek whose telephone number is (571) 272-1906.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vuthe Siek


VUTHE SIEK
PRIMARY EXAMINER

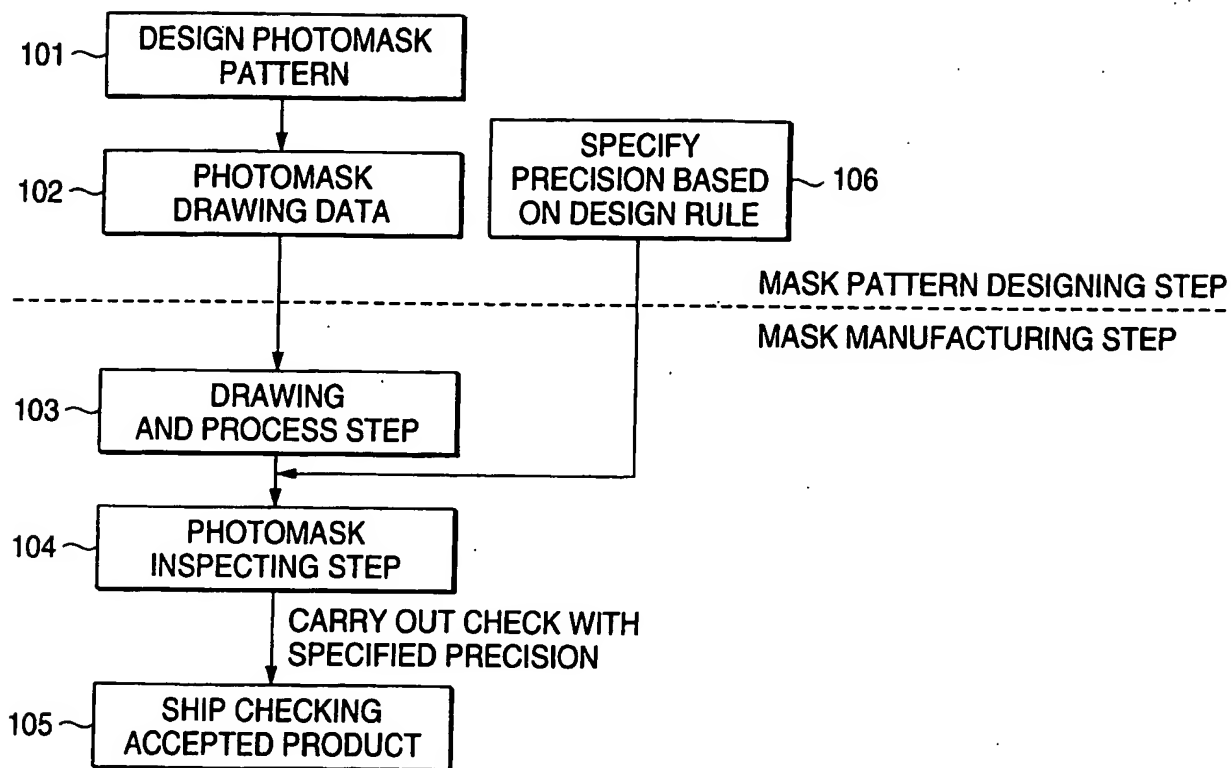


REPLACEMENT DRAWING

21/22

Approved
all drawings
V.S.
1/25/06

FIG. 25



PRIOR ART